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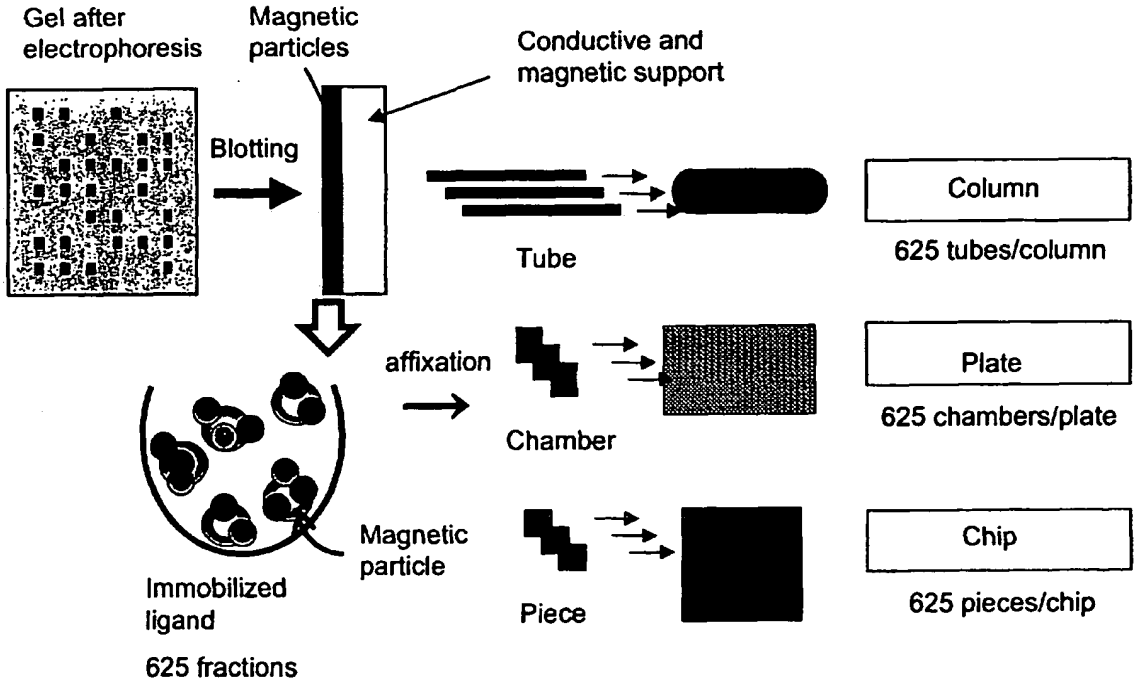
(54) Title: NOVEL PROTEOME ANALYSIS METHOD AND DEVICES THEREFOR



(57) Abstract: The present invention provides a proteome analysis method including grouping a proteome into membrane proteins and compounds capable of interacting with the membrane proteins, while retaining their native structure and function, and analyzing both the membrane proteins and the compounds based on biological affinity, and devices therefor.

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AMENDED CLAIMS

[received by the International Bureau on 31 July 2002 (31.07.02);
new claims 18-28 added; remaining claims unchanged (2 pages)]

18. (added) A library of membrane proteins embedded in liposome.

19. (added) The library of claim 18, wherein the membrane proteins comprise at least GPI anchor type receptors, G protein-coupled receptors, and oligomer type receptors.

20. (added) The library of claim 18, wherein the membrane protein-embedded liposome has a diameter of 10 to 5,000 nm.

21. (added) The library of claim 18, wherein the membrane protein-embedded liposome has a diameter of 10 to 500 nm.

22. (added) The method of claim 1, wherein the compounds are ligands and the membrane proteins are receptors.

23. (added) The method of claim 1, wherein the compounds are water-soluble proteins, and the method comprises the steps of:
(1) isolating a water-soluble protein fraction from a biological sample, separating water-soluble proteins in the fraction by gel electrophoresis, bringing the gel after electrophoresis into contact with a ligand support having a surface that can immobilize the proteins retaining the physiological function, and transferring the water-soluble proteins in the gel onto the ligand support;
(2) isolating a membrane fraction from a cell sample and fusing the membrane fraction with liposomes to prepare a membrane protein library wherein all membrane proteins are attached to or penetrated into its lipid bilayer;
(3) bringing the water-soluble proteins immobilized on the ligand support in contact with the membrane protein library to trap membrane proteins having affinity to the water-soluble proteins on the ligand support; and
(4) analyzing both or either of the membrane proteins and the water-soluble proteins having affinity by a means capable of

analyzing at least one of the physical or chemical properties of those proteins.

24. (added) The support of calim 6, wherein the compounds are ligands other than antibodies and the membrane proteins are receptors.

25. (added) The plate of claim 11, wherein the compounds are ligands other than antibodies and the membrane proteins are receptors.

26. (added) The method of claim 12, wherein the proteome analysis method is the method defined in claim 2 or 3.

27. (added) The method of claim 13, wherein the method applied is the method of claim 26.

28. (added) The method of claim 15, wherein the proteome analysis is performed according to the method of claim 2 or 3.